

B.2:  
In 81  
56

# FOREST CONTROL

by

## CONTINUOUS INVENTORY

"Today, I have grown taller from walking  
with the trees."

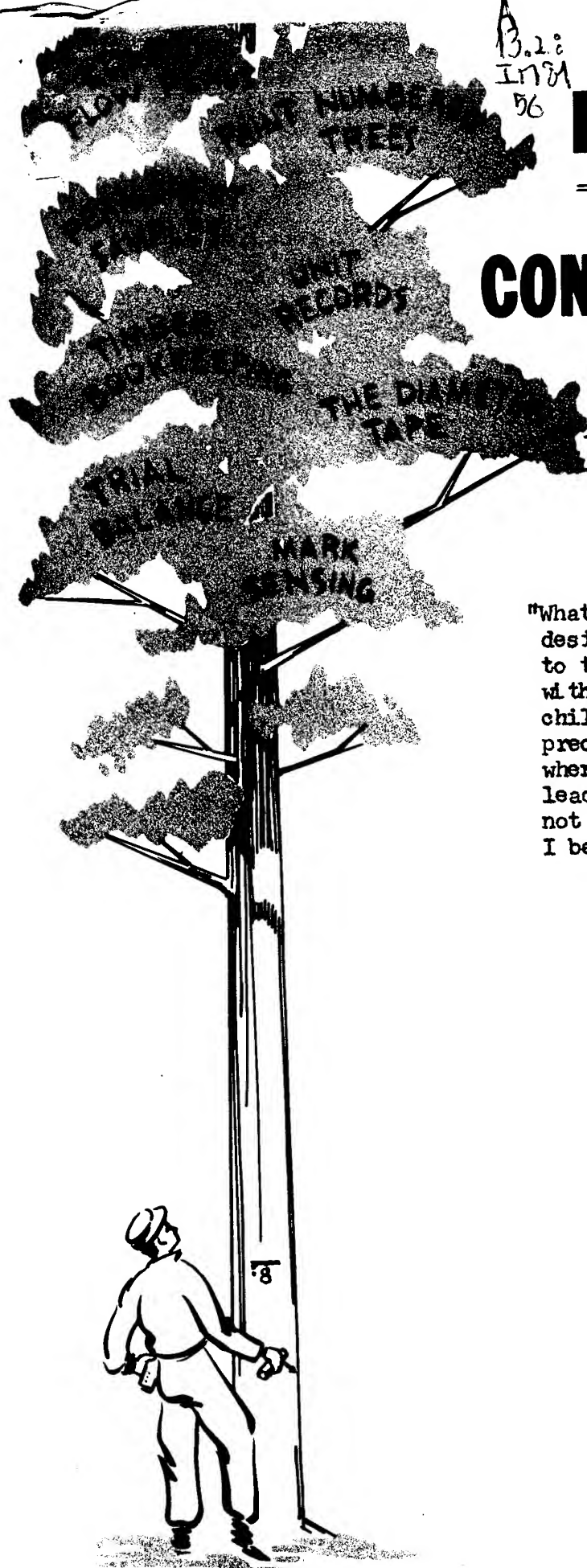
...Karle Wilson

Milwaukee, Wis. November, 1958 No. 56

"What I have to do is to induce my intense  
desire to take account of the facts, not  
to try to force the facts into agreement  
with my wishes. Accept a fact as a little  
child does. Be prepared to give up every  
preconceived idea. Follow nature humbly  
wherever, into whatever abysses she may  
lead you or you will learn nothing. It was  
not until I resolved to do all this that  
I began to experience any peace of mind."

Thomas Henry Huxley  
(100 years ago)

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## CONVERTING RATIOS

### INTERNATIONAL TO SCRIBNER LOG SCALE

It has been the practice with C.F.I. to calculate the board foot volumes of each individual tree on an International log scale basis. Not only does this give a truer picture of the sawlog volumes in trees and stands than the Scribner rule, but it also gives a measure of the growth of trees unhampered by problems of over-run or under-run.

It is practical and easy to get into the habit of thinking in terms of International log scale, but some companies and some public agencies prefer the Scribner scale. In order to make these Scribner values available, converting ratios have been calculated. These ratios, which are generally applicable in the Lake and Central States, are used directly in the volume computing formula.

#### THE FORMULA

$$V = [A + (B \times L)] (Sp) (So) (Cs)$$

#### IN WHICH

- A } = Pre-computed volume factors available in master deck form.  
B } (See table attached)
- L = Actual usable length of the tree taken in the woods  
Sp = Species correction factor  
So = Soundness correction factor; the cull deduction  
Cs = Converting ratio, International to Scribner log scale  
V = BOARD FOOT VOLUME

#### EXAMPLE

Computing the volume of a tree 18.6 inches in diameter and 38 feet  
Species factor 1.05 usable length.  
Soundness factor .093  
Converting ratio .897

#### THE PROBLEM

$$V = [30.97 + (7.01 \times 38)] (1.05) (.093) (.897)$$

V = 290.4 Net International board feet

V = 260.5 Net Scribner board feet

It should be understood that the accuracy of the Scribner volumes secured with these converting ratios is most satisfactory for the sum total results for the whole forest, and less reliable in finer breakdowns of the data. Variations from the true Scribner scale will be greatest for the individual tree.

CAL STOTT,  
Forester  
U. S. Forest Service

BOARD FOOT VOLUME FACTORS

INTERNATIONAL LOG SCALE

(For Punch Card Computing)

September, 1954

<u>D.B.H.</u>	<u>A Factor</u>	<u>B Factor</u>	<u>Base Usable Length</u>
12	16.50	2.29	15'
14	16.95	3.66	20'
16	20.90	5.07	25'
18	28.16	6.55	27'
20	38.50	8.10	29'
22	51.71	9.71	31'
24	67.59	11.39	31'
26	85.92	13.16	32'
28	106.49	15.00	33'
30	129.09	16.94	33'
32	153.52	18.96	33'
34	179.55	21.08	33'
36	206.98	23.31	33'

5/26/58

RATIOS FOR CONVERTING INDIVIDUAL TREE VOLUMES

from  
INTERNATIONAL TO SCRIBNER SCALE

<u>D.B.H.</u>	<u>Ratio</u>	<u>D.B.H.</u>	<u>Ratio</u>	<u>D.B.H.</u>	<u>Ratio</u>	<u>D.B.H.</u>	<u>Ratio</u>
9.0	.727	11.0	.853	19.0	.900	24.0	.927
1	.730	1	.855	1	.901	1	.927
2	.733	2	.856	2	.902	2	.927
3	.736	3	.857	3	.902	3	.928
4	.739	4	.859	4	.903	4	.928
5	.742	5	.860	5	.903	5	.928
6	.745	6	.862	6	.904	6	.928
7	.748	7	.863	7	.905	7	.929
8	.751	8	.864	8	.905	8	.929
9	.754	9	.865	9	.906	9	.930
10.0	.757	15.0	.866	20.0	.907	25.0	.930
1	.760	1	.867	1	.907	1	.930
2	.763	2	.868	2	.908	2	.931
3	.766	3	.870	3	.908	3	.931
4	.768	4	.871	4	.909	4	.932
5	.772	5	.872	5	.910	5	.932
6	.774	6	.873	6	.911	6	.932
7	.777	7	.874	7	.912	7	.932
8	.780	8	.875	8	.912	8	.933
9	.782	9	.876	9	.913	9	.933
11.0	.785	16.0	.877	21.0	.913	26.0	.933
1	.788	1	.878	1	.914	1	.933
2	.791	2	.879	2	.914	2	.933
3	.794	3	.880	3	.915	3	.933
4	.796	4	.881	4	.915	4	.934
5	.799	5	.882	5	.916	5	.934
6	.801	6	.883	6	.916	6	.934
7	.804	7	.884	7	.917	7	.934
8	.806	8	.884	8	.917	8	.935
9	.809	9	.885	9	.917	9	.935
12.0	.811	17.0	.886	22.0	.918	27.0	.935
1	.814	1	.887	1	.918	1	.935
2	.816	2	.887	2	.919	2	.935
3	.818	3	.888	3	.919	3	.936
4	.821	4	.889	4	.920	4	.936
5	.824	5	.890	5	.920	5	.936
6	.826	6	.891	6	.921	6	.936
7	.828	7	.892	7	.921	7	.936
8	.830	8	.892	8	.922	8	.936
9	.832	9	.893	9	.922	9	.936
13.0	.834	18.0	.894	23.0	.923	28.0	.937
1	.836	1	.894	1	.923	1	.937
2	.838	2	.895	2	.924	2	.937
3	.840	3	.895	3	.924	3	.937
4	.842	4	.896	4	.925	4	.937
5	.844	5	.896	5	.925	5	.937
6	.846	6	.897	6	.925	6	.938
7	.848	7	.897	7	.926	7	.938
8	.850	8	.898	8	.926	8	.938
9	.852	9	.899	9	.927	9	.938

# Converting Factors International to Scribner

<u>D.B.H.</u>	<u>Ratio</u>	<u>D.B.H.</u>	<u>Ratio</u>	<u>D.B.H.</u>	<u>Ratio</u>	<u>D.B.H.</u>	<u>Ratio</u>
29.0	.938	34.0	.943	39.0	.946		
1	.938	1	.943	1	.946		
2	.939	2	.943	2	.946		
3	.939	3	.943	3	.946		
4	.939	4	.943	4	.946		
5	.939	5	.943	5	.946		
6	.939	6	.943	6	.946		
7	.940	7	.943	7	.946		
8	.940	8	.943	8	.946		
9	.940	9	.943	9	.947		
30.0	.940	35.0	.943	40.0	.947		
1	.940	1	.944				
2	.940	2	.944				
3	.940	3	.944				
4	.940	4	.944				
5	.940	5	.944				
6	.940	6	.944				
7	.940	7	.944				
8	.940	8	.944				
9	.940	9	.944				
31.0	.940	36.0	.944				
1	.940	1	.944				
2	.940	2	.945				
3	.940	3	.945				
4	.940	4	.945				
5	.940	5	.945				
6	.940	6	.945				
7	.940	7	.945				
8	.941	8	.945				
9	.941	9	.945				
32.0	.941	37.0	.945				
1	.941	1	.945				
2	.941	2	.945				
3	.941	3	.945				
4	.941	4	.945				
5	.941	5	.945				
6	.941	6	.945				
7	.941	7	.945				
8	.941	8	.945				
9	.942	9	.945				
33.0	.942	38.0	.945				
1	.942	1	.945				
2	.942	2	.946				
3	.942	3	.946				
4	.942	4	.946				
5	.942	5	.946				
6	.942	6	.946				
7	.942	7	.946				
8	.943	8	.946				
9	.943	9	.946				